Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-2 (cancelled)

3. (Original) A process for identifying specific members of a previously unknown protein-ligand binding pair, comprising the steps of:

(a) synthesizing a ligand library onto resin beads to form an immobilized ligand library, wherein each bead of the immobilized library comprises one member of the ligand library;

(b) incubating the immobilized ligand library with one or more protein mixture;

(c) detecting an immobilized ligand-protein binding pair from the incubation mixture;

d) isolating the resin bead comprising the ligand-protein binding pair; and

e) identifying the ligand of the ligand-binding pair on the isolated resin bead, wherein at least part of the identification process is performed directly on the bead; and

f) identifying the protein of the ligand-binding pair on the isolated resin bead, wherein at least part of the identification process is performed directly on the bead;

wherein the identified ligand and protein are specific members of a previously unknown ligand-protein binding pair.

4. (Currently amended) The process according to ~~any of~~ claim~~s 2 and~~ 3, wherein the process comprises incubation with two or more differentially labelled protein mixtures.

Claim 5 (cancelled)

6. (Currently amended) The process according to ~~any of~~ claim~~s 1 and~~ 3, wherein the resin comprises polyethylene glycol.

7. (Currently amended) The process according to ~~any of~~ claim~~s 1 to~~ 3 , wherein the library comprises small organic molecules , and wherein said small organic molecules are non-oligomeric, carbon containing compounds having a size of less than 600 mass units;

Claims 8-15 (cancelled)

16. (Currently amended) The process according to ~~any of~~ claim~~s 1 to~~ 3, wherein at least one protein mixture is derived from living cells ~~a mixture of mammalian tissue cell proteins~~.

Claims 17-21 (cancelled)

22. (Currently amended) The process according to ~~any of~~ claim~~s 1 to~~ 3, wherein the ligand library is a peptide library.

Claims 23-25 (cancelled)

26. (Currently amended) The process according to ~~any of~~ claim~~s 1 to~~ 3, wherein the ligand library comprises peptidomimetics.

Claims 27-28 (cancelled)

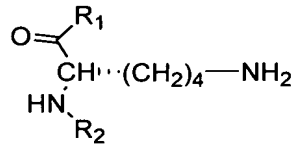
29. (Currently amended) The process according to ~~any of~~ claim~~s 1 to~~ 3, wherein the ligand is identified using mass spectrometry.

30. (Currently amended) The process according to ~~any of~~ claim~~s 1 to~~ 3, wherein the ligand is identified using NMR spectroscopy.

31. (Currently amended) The process according to ~~any of~~ claim~~s 1 to~~ 3, wherein the protein is identified using mass spectrometry.

Claims 32-34 (cancelled)

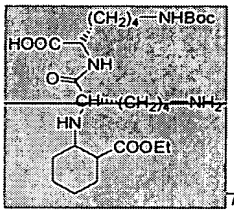
35. (Currently amended) The ligand according to

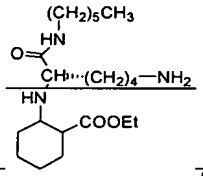


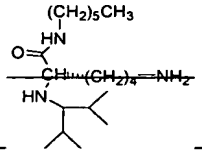
claim 88, wherein the ligand is a ligand according to formula I,

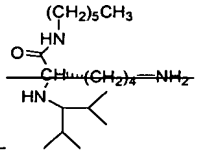
wherein R1 and R2 individually are selected from the group consisting of any of the compounds mentioned in tables 1, 2, 3, 7, 8 and 9.

~~wherein said ligand is selected from the group consisting of~~

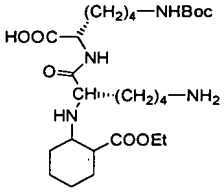




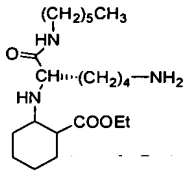


~~and~~


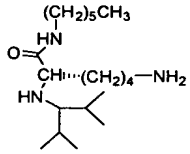
36. (Currently amended) The isolated ligand-protein binding pair according to claim 88, ~~an isolated ligand-protein binding pair consisting of a ligand according to claim 35 and a protein,~~ wherein said isolated ligand-protein binding pair is selected from the group consisting of

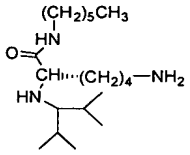
i) 

and (Angiotensin converting enzyme (P22967) or U2 nuclear ribonucleoprotein auxilary factor (gi 2842676);

ii) 

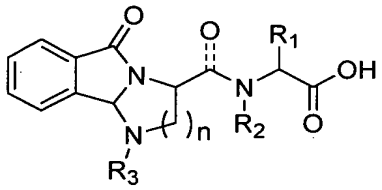
and Inward rectifier potassium channel 13 (Q9QZ65, IRKD_CAVPO); Sulfonylurea receptor 2 (Q63563); or small conductance potassium channel (P58391);

iii)  and Heat Shock protein 70kDa protein 12A (Q8KOU4); Serine/threonine protein kinase (O88866) or Ras GTPase activating protein 2 (GAP1m) (P58069); and

iv)  and Glycogen synthase kinase-3 beta factor (AQ9WV60).

Claims 37-42 (cancelled)

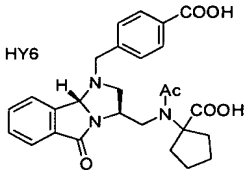
43. (Currently amended) The ligand according to claim 88, wherein the ligand is a ligand according to formula IV:



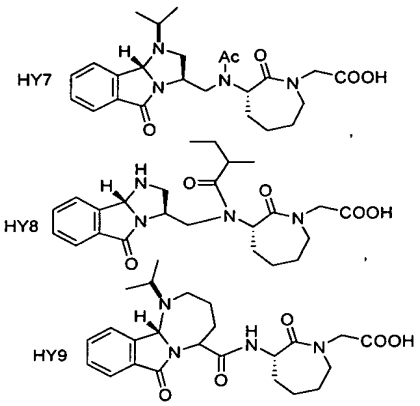
wherein R1 is the side chain of a natural or unnatural amino acid, R2 is an acyl group or hydrogen and R3 is aryl or alkyl, which optionally is substituted and dotted lines indicates an optional carbonyl, with the proviso that if the optional carbonyl is present then R2 is hydrogen and if the optional carbonyl is not present, then R2 is an acyl group ~~wherein R1 is the side chain of~~

~~an amino acid selected from the group consisting of compound 3 to 47, 64, 66, 67, 71, 73, 74, 103 to 106 and 128 of tables 1, 2, 3, 7 and 9, R2 is selected from the group consisting of compounds 117 to 126 as outlined in table 9 and hydrogen and R3 is selected from the group consisting of compounds 103 to 116 and 128 of table 9~~.

44. (Original) The ligand according to claim 43, wherein said ligand is selected from the group consisting of



, and



Claim 45 (cancelled)

46. (Currently amended) The isolated ligand-protein binding pair according to claim ~~45~~88, wherein said binding pair is selected from the group consisting of:

a) HY6 and (Myosin chain (Q63358) or NF-kappa B-repressing factor (Transcription factor ITBA4 protein) (O15226)).

b) HY7 and (Zinc finger protein 339 (Q9BRPO) or DNA repair protein RAD52 homolog (P43351)).

c) HY8 and (Zinc finger protein 339 (Q9BRPO) or DNA repair protein RAD52 homolog (P43351).

d) HY9 and Zinc finger protein 339 (Q9BRPO) or DNA repair protein RAD52 homolog (P43351).

Claims 47-48 (cancelled)

49. (Currently amended) The ligand according to claim 88, wherein said ~~A~~ ligand comprises~~ing~~ or consists ~~ing~~ of His-Tyr-Pip-Thr-Acm-Abi [SEQ ID NO: 14];

50. (Currently amended) The isolated ligand-protein binding pair according to claim 88, wherein said pair is an isolated ligand-protein binding pair comprising:

a) a ligand comprising or consisting of His-Tyr-Pip-Thr-Acm-Abi [SEQ ID NO: 14];~~The ligand according to claim 30~~; and

b) Chain C P27 cyclin A-CDK2 complex: (Cyclin A?) (gi2392395); Hypothetical protein XP_154035.

Claims 51-76 (cancelled)

77. (Currently amended) The ligand according to claim 88, wherein said~~A~~ ligand comprises~~ing~~ or consists ~~ing~~ of T(Sa)-Q-P-G-M [SEQ ID NO: 63]

78. (Currently amended) The isolated ligand-protein pair according to claim 88, wherein said ~~An~~ isolated ligand-protein binding pair comprises ~~ing~~:

a) A ligand comprising or consisting of T(Sa)-Q-P-G-M [SEQ ID NO: 63]~~The ligand according to claim 77~~; and

b) ATP dependent helicase: HrpA homolog (NCBIBAA15034); Putative protease ydcP percursor (NCBI P76104).

Claims 79-87 (cancelled)

88. (New) A ligand or an isolated ligand-protein binding pair identified by the process according to claim 3.

89. (New) The ligand according to claim 88, wherein R1 is selected from the group consisting of compound numbered 3, 4, 7, 8, 10, 15, 60 and 61 and/or R2 is selected from the group consisting of compounds numbered 56, 57, 58 and 59.

90. (New) The ligand according to claim 43, wherein R_1 is the side chain of an amino acid selected from the group consisting of compound 3 to 47, 64, 66, 67, 71, 73, 74, 103 to 106 and 128 of tables 1, 2, 3, 7 and 9, R_2 is selected from the group consisting of compounds 117 to 126 as outlined in table 9 and hydrogen and R_3 is selected from the group consisting of compounds 103 to 116 and 128 of table 9.